

10/711,076

REMARKS

Claims 1, 4-8, 11-14, 29, and 31-35, all the claims pending in the application, stand rejected on prior art grounds. Applicants respectfully traverse these rejections based on the following discussion.

I. The Prior Art Rejections

Claims 1, 4-6, and 29-35, stand rejected under 35 U.S.C. §102(e) as being anticipated by Capote et al. (2005/0218517), hereinafter "Capote". Claims 8, and 11-14, stand rejected under 35 U.S.C. §103(a) as being unpatentable over Capote in view of Applicant's Admitted Prior Art (AAPA). Applicants respectfully traverse these rejections based on the following discussion.

A. The Rejection Based on Capote

Applicants respectfully traverse this rejection because Capote does not disclose (or suggest) that the "compressible film is stable above the melting point of said solder connectors, and wherein said compressible film remains compressible through numerous thermal excursions." Instead, as explained in paragraph 147 of Capote, the reworkability layer 42 (which is proposed to be a compressible film in the Office Action) "is generally a meltable polymer" that is reflowed with the solder bumps 14. Therefore, the reworkability layer 42 is not stable above the melting point of the solder as defined by the independent claims. Further, the flux adhesive 34 (which is proposed to be a compressible film in the Office Action) is not actually compressible and instead is described as being a layer that is "hardened" after the solder is reflowed.

More specifically, with the claimed invention the compressible film is stable above the melting point of the solder connectors, and remains compressible through numerous thermal excursions. For example, as described in paragraph 29, the various embodiments herein use a compressible film around the device to carrier connection to

10/711,076

provide a volume into which the solder can expand (before it reaches the underfill), thereby allowing the underfill to support the "bumps" even after numerous thermal excursions. The result is that solders can be used with all their advantages, without incurring the negative impact of solder volume expansion.

To the contrary, Capote describes that the reworkability layer 42 "is generally a meltable polymer" that is reflowed with the solder bumps 14. Therefore, the reworkability layer 42 is not stable above the melting point of the solder as defined by the independent claims. More specifically, the claims define that the "compressible film is stable above the melting point of said solder connectors." Further, even though the attachment and stress distribution layers 38 and 40 "are generally stiffer than layer 42" (paragraph 147) in Capote, there is no indication that the reworkability and layer 42 is actually compressible. Simply because one layer may be stiffer than another layer does not necessarily indicate that one layer has a compressible nature. Instead of being designed to compress and absorb some of the expansion of the solder, it is clear that layer 42 in the structure described by Capote was intended to allow the piece to be "reworked" because Capote states that "rework is made possible by the layer 42" (paragraph 147). There is no indication within Capote that layer 42 was intended to be compressible or that it performs any compressible functions because layer 42 is intended to allow the piece to be reworked and is not intended to absorb any expansion of the solder as is defined by Applicants' independent claims. Therefore, since the reworkability layer 42 described in Capote reflows with the solder bumps and is not indicated as having a compressible nature, it would not teach or suggest one ordinarily skilled in the art to utilize the claimed compressible film that is "stable above the melting point of said solder connectors, and wherein said compressible film remains compressible through numerous thermal excursions" as defined by independent claims 1 and 29.

Further, the flux adhesive 34 is not actually compressible and instead is described as being a layer that is "hardened" (paragraph 147) after the solder is reflowed. More specifically, in paragraph 147 Capote describes that the "solder is reflowed and the flux adhesive 34 is hardened and that "the flux adhesive 34 firmly retains the layer 40 and part of the solder bumps 14 on the substrate 20 while the chip bonding layer 38 firmly retains the other part of the solder bumps 14 on the chip 10 as the reworkable layer 42 separates

10/711,076

without damage to the chip 10 or the substrate 20." Therefore, it is Applicants' position that the flux adhesive 34 described in Capote does not have a compressible nature and instead is designed to be hardened. As such, the flux adhesive 34 would not provide capability of absorbing any expansion of the solder as the claimed invention does. Therefore, since the flux adhesive 34 described in Capote is described as a "hardened" layer, it would not teach or suggest one ordinarily skilled in the art to utilize the claimed compressible film that is "stable above the melting point of said solder connectors, and wherein said compressible film remains compressible through numerous thermal excursions" as defined by independent claims 1 and 29.

Therefore, it is Applicants' position that Capote does not teach or suggest the claimed compressible film that is "stable above the melting point of said solder connectors, and wherein said compressible film remains compressible through numerous thermal excursions" as defined by independent claims 1 and 29 and therefore Capote does not anticipate independent claims 1 or 29. Further, dependent claims 4-6, and 31-35 are similarly not anticipated, not only because they depend from non-anticipated independent claims, but also because of the additional features of invention they define. In view of the foregoing, the Examiner is respectfully requested to reconsider and withdraw this rejection.

B. The Rejection Based on Capote in view of AAPA

The Office Action admits that Capote does not discuss lead-free solders and instead the Office Action argues that the use of lead-free solders would have been obvious. However, this reasoning ignores that one of the goals of the claimed invention was to overcome some of the thermal expansion problems associated with solders that expand, such as lead-free solders. Because Capote does not disclose lead-free solders, there is no motivation provided to one ordinarily skilled in the art to utilize the claimed compressible film in order to compensate for the thermal expansion associated with lead-free solders. To the contrary, because Capote does not involve any form of lead-free solder, there would be no motivation to provide any form of compressible film because

10/711,076

Capote does not deal with the problem of solder expansion. Therefore, it would not have been obvious to modify Capote in the manner suggests in the Office Action.

Further, as shown above, Capote does not teach or suggest the claimed compressible film that is "stable above the melting point of said solder connectors, and wherein said compressible film remains compressible through numerous thermal excursions" as defined by independent claim 8 and therefore Capote does not render obvious independent claim 8. Further, dependent claims 11-14 are similarly not obvious, not only because they depend from a patentable independent claim, but also because of the additional features of invention they define. In view of the foregoing, the Examiner is respectfully requested to reconsider and withdraw this rejection.

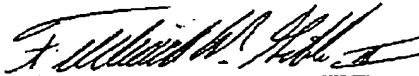
II. Formal Matters and Conclusion

In view of the foregoing, Applicants submit that claims 1, 4-8, 11-14, 29, and 31-35, all the claims presently pending in the application, are patentably distinct from the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary.

Please charge any deficiencies and credit any overpayments to Attorney's Deposit Account Number 09-0458.

Respectfully submitted,



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